

Exercise 8.1

Open the Excel workbook in **Exe 8.1B.xlsx** from the Exercises folder. Obtain the sample size, sample mean weight loss and the sample standard deviation of the weight loss for Diet B. Place these results in the block of cells F23 to F25, using the same format as that employed for the Diet A results in the above example.

Briefly interpret your findings. What do these results tell you about the relative effectiveness of the two weight-reducing diets?

Diet A	n	50
	Mean	5.341
	SD	2.536

Diet B	n	50
	Mean	3.710
	SD	2.769

Analysis

Diet A has a mean weight reduction of 5.341 units with a standard deviation of 2.536 among 50 participants.

Diet B has a mean weight reduction of 3.710 units with a standard deviation of 2.769 among 50 participants.

The mean weight reduction for Diet A (5.341) is higher than that of Diet B (3.710), suggesting that, on average, Diet A is more effective in reducing weight. Since the standard deviations are about similar which indicates that there is some variability within both groups.

Exercise 8.2

Open the Excel workbook in **Exe 8.2B.xlsx** from the Exercises folder. Obtain the sample median, first and third quartiles and the sample interquartile range of the weight loss for Diet B. Place these results in the block of cells F26 to F29, using the same format as that employed for the Diet A results in the above example.

Briefly interpret your findings. What do these results tell you about the relative effectiveness of the two weight-reducing diets?

Diet A	n	50
	Mean	5.341
	SD	2.536
	Median	5.642
	Q1	3.748
	Q3	7.033
	IQR	3.285
Diet B	n	50
	Mean	3.710
	SD	2.769
	Median	3.745
	Q1	1.953
	Q3	5.404
	IQR	3.451

Analysis

Central Tendency:

Diet A has a higher mean (5.341) compared to Diet B (3.710). This suggests that, on average, participants on Diet A lost more weight than those on Diet B.

Variability:

Diet A has a higher standard deviation (2.536) compared to Diet B (2.769). This indicates that there is greater variability in weight loss for Diet A, meaning some participants may have lost a significant amount of weight while others didn't.

Median:

The median for both diets is close to their respective means, which suggests that the data is roughly symmetrically distributed for both diets.

Spread:

Diet B has a larger interquartile range (IQR) of 3.451 compared to Diet A's IQR of 3.285. This suggests that Diet B has a wider spread of weight loss outcomes between the 25th and 75th percentiles.

In summary, Diet A appears to have a higher average weight loss compared to Diet B, but it also has greater variability in outcomes. Diet B has a lower average weight loss but a more consistent range of outcomes. The choice between the two diets depends on whether one values higher average weight loss or a more consistent weight loss experience.

Exercise 8.3

Open the Excel workbook in Exe 8.3D.xlsx from the Exercises folder. Obtain the frequencies and percentage frequencies of the variable Brand, but this time for the Area 2 respondents, using the same format as that employed for the Area1 results in the above example.

Briefly interpret your findings. What do these results tell you about the patterns of brand preferences for each of the two demographic areas?

Frequencies

	Area 2
A	19
B	30
Other	41
Total	90

Percentages

	Area 2
A	21.1
B	33.3
Other	45.6
Total	100

Analysis

The results for Area 2 show that there are three main brand preferences: A, B, and "Other."

21.1% of respondents in Area 2 prefer brand A.

33.3% of respondents in Area 2 prefer brand B.

45.6% of respondents in Area 2 prefer other brands or have different preferences.

These results suggest that in Area 2, brand B has the highest level of preference, followed by brand A, while a significant portion of respondents have different brand preferences ("Other"). Overall, brand B is the most preferred among the two brands in this demographic area.